Cardiac Arrest due to Pneumoperitoneum After PEG Insertion in ALSPatient

ALS Hastasında PEG Takılması Sonrası Pnömoperitoneuma Bağlı Gelişen Kardiyak Arrest

Pneumoperitoneum After Peg Insertion

Berit Gökçe Ceylan, Pınar Karabacak, Hasan Saygın, Hüzeyfe Feyyaz Demirel, Füsun Eroğlu
Department of Anesthesiology and Reanimation, Suleyman Demirel University Faculty of Medicine, Isparta, Turkey

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Özet

Amyotrofik lateral skleroz, primer korteks, beyinsapı ve spinal kordda motor nöron dejenerasyonu ile karakterize motor nöron hastalığıdır. Perkütan endoskopik gastrostomi (PEG) çeşitli nedenlerle oral yoldan beslenemeyen ancak gastrointestinal fonksiyonları normal olan hastalarda nütrisyon desteği sağlamak için tercih edilen bir yöntemdir PEG tüpü yerleştirilmesi ilaçlar ve beslenme için güvenilir erişim sağlamak için yutma güçlüğü olan ALS hastalarına önerilmektedir. Biz 63 yaşında disfaji ve PEG sonrası pnömoperitonum gelişen ALS hastasını ve yoğun bakım sürecini sunduk. PEG bu vakalarda beslenme tedavisi için sıklıkla kullanılmakta fakat pnömoperitoneum gibi nadir komplikasyonlar, yoğun bakımda kalış süresi ve mortalite oranlarını artırabilmektedir.

Anahtar Kelimeler

Amyotrofik Lateral Skleroz; Perkütan Endoskopik Gastrostomi; Pnömoperitoneum; Kardiyak Arrest

Abstract

Amyotrophic lateral sclerosis (ALS), the most common motor neuron disease, is characterized by motor neuron degeneration in the primary cortex, brainstem, and spinal cord. Percutaneous endoscopic gastrostomy (PEG) is a preferable method of nutritional support in patients with normal gastrointestinal function who cannot be fed orally for various reasons. PEG tube placement is recommended in amyotrophic lateral sclerosis (ALS) patients with dysphagia to provide reliable access for medications and nutrition. We report a case of a 63-year-old man with amyotrophic lateral sclerosis presenting with dysphagia and pneumoperitoneum following percutaneous endoscopic gastrostomy (PEG) placement. We also report on the intensive care period of this patient. PEG is a widely used nutrition therapy in these cases but complications such as pneumoperitoneum result in long term ICU stays and higher mortality rates.

Keywords

Amyotrophic Lateral Sclerosis; Percutaneous Endoscopic Gastrostomy; Pneumoperitoneum; Cardiac Arrest

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Corresponding Author: Pinar Karabacak, Department of Anesthesiology and Reanimation, Suleyman Demirel University Faculty of Medicine, Isparta, Turkey.
GSM: +905056846286 F.: +90 2462237831 E-Mail: drpinara@gmail.com

Introduction

ALS is a neurodegenerative disease characterized by progressive muscular paralysis reflecting degeneration of motor neurons in the primary motor cortex, corticospinal tract, brainstem, and spinal cord. İmpaired oral feeding may result in the need for nutrition support due to dysphagia, risk of aspiration due to an inability to protect the airway, respiratory muscle weakness, gastroparesis or gastrointestinal reflux, and/or impaired appetite control centers in the brain [1,2]. Percutaneous endoscopic gastrostomy (PEG) is an enteral nutrition method that is used in patients who have an intact gastrointestinal tract but are unable to feed orally. PEG tube placement is recommended in ALS patients with dysphagia to provide reliable access for medications and nutrition. Pneumoperitoneum is a common finding after PEG tube insertion and its prevalence is reported to be as high as 50% in some studies. In fact, post-PEG pneumoperitoneum is not generally considered a complication, because it rarely causes any serious consequences [3,4]. PEG is a widely used nutrition therapy in these cases; complications such as pneumoperitoneum are rare, but may result in long term ICU stays and higher mortality rates.

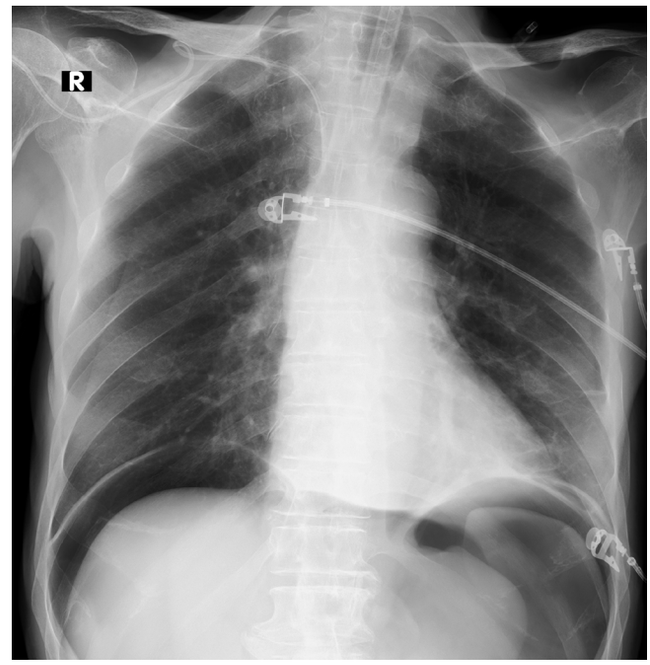

Figure 1. Pneumoperitoneum after PEG insertion

Case Report

A 63-year-old male patient who had been followed for 1 year with a diagnosis of amyotrophic lateral sclerosis was administered 100 mg/day of riluzole. He was admitted to the hospital complaining of dysphagia, hoarseness, and weight loss. There were no specific findings in his medical or familial history. Vital signs were stable. Nutritional status was poor and he complained of swallowing difficulty. The deep tendon reflexes of both the upper and lower limbs were positive for upper motor signs. The patient presented symptoms such as swallowing difficulties for liquids and solids, bulbar weakness, signs of hoarseness, muscle atrophy, and weakness in the trunk, neck, back. PEG was planned for the patient due to dysphagia and weight loss. After the procedure dyspnea and respiratory arrest were seen; following 5 minutes of CPR he was transferred to the ICU. Laboratory studies showed the following parameters: white blood cell count 18,200 /mm3, hemoglobin 13.3 g/L, platelets 136,000/mm3, serum sodium 141 mEq/L, serum potassium 3.79 mEq/L, serum creatinine 0.62 mg/dL, serum blood urea nitrogen 27 mg/dL, serum albumin 3.2 g/dL, serum lactate dehydrogenase 307 IU/L, serum erythrocyte sedimentation rate 6 mm/hr, and serum C-reactive protein 126 mg/Dl. Pneumoperitoneum was detected by the chest X ray (Figure 1). The patient was consulted and general surgery and pneumoperitoneum were considered. Nasogastric tube insertion and follow-up was recommended and performed. By the 5th day, the free air had been resorbed. Nutrition with PEG was started. Weaning was attempted and the patient was not extubated. The trachetomy was performed on the 10th day in ICU. The posteroanterior chest radiograph showed alveolar opacity at the right lower zone. Pneumonia developed and tracheal aspirate cultures were taken and, empirically, piperasilin tazobactam 3×4.5 gr was started. From time to time, T-tube was attempted. On the 35th day of ICU, the patient experienced abdominal pain and abdominal CT scans were obtained. Necrotizing enterocolitis was diagnosed and an emergency operation was planned for the patient, but cardiac arrest developed and there was no response to CPR.

Discussion

ALS is a progressive and devastating neurodegenerative disorder that affects primarily motor neurons. It is characterized by destruction of both upper and lower motor neurons. It is the most common type of motor neuron disorder. Respiratory failure and aspiration due to respiratory muscle weakness are the most common causes of mortality in patients with ALS [1,2].

The development of bulbar weakness or dysphagia in these patients can lead to significant weight loss and morbidity [4]. Dysphagia is a common problem in patients with ALS and causes difficulties in maintaining a safe and adequate oral intake of nutrition and fluids. Patients with severe dysphagia often experience weight loss, choking, and coughing when attempting to swallow; episodes of aspiration; and prolonged and effortful mealtimes [5].

PEG is suitable for patients with normal intestinal function but defective swallowing and oral nutrition. PEG tube placement is recommended in ALS patients with dysphagia to provide reliable access for medications and nutrition [4,5]. Enteral nutrition is widely required in ALS patients. The insertion of the enteral tube has traditionally been achieved by PEG. PEG improves the quality of life in ALS patients and in other motor neuron diseases, but there is no convincing evidence that it prevents aspiration or improves survival [4-6]. Complications of gastrostomy tube placement may be minor (wound infection, minor bleeding) or major (necrotizing fasciitis, colocutaneous fistula). Most complications are minor. The majority of procedural risks are minor, including wound infection, leakage, and superficial bleeding. Major complications include esophageal perforation, hemorrhage, and intracolonic placement. Pneumoperitoneum is a common postprocedural finding thought to be caused by the leakage of insufflated air through the needle puncture site of the gastric wall. It usually has no clinical significance and raises

alarm only if a ruptured viscus is suspected. Pneumoperitoneum is an early (72 hours) complication of PEG insertion [4,5,7,8].

In conclusion, ALS is associated with a hypermetabolic state, so patients require increased calorie intake. PEG is a widely used nutrition therapy for ALS patients. PEG complications such as pneumoperitoneum may result in long term ICU stays and increased mortality rates.

Competing interests

The authors declare that they have no competing interests.

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